Material Separation Plan For the Diversion of Mercury (MSP2)

Annual Report

Wheelabrator Saugus J.V.

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Materials Separation Plan
Annual Report on the Results of the Mercury Recovery Program

1. Introduction

The Materials Separation Plan (MSP2) for 2003 was a continuation of the 2002 Materials Separation Plan with a few modifications. The plan describes the activities involved in the design, implementation and operation of the Mercury Recovery Program (MRP) in each community. Each MRP is community focused, locally based and operated. Wheelabrator provides all of the technical, logistical and financial support for each program. The corner stone of the MRP Program are the community collection sties. Each community has at least one, often two and in some cases three centrally located and easily accessible locations in the City or Town where residents can safely dispose of products that contain mercury.

MRP for 2003 consisted of the following elements:

- Regional Outreach Program
- Local Outreach / Education Program
- Mercury Separation and Recycling Program
- Thermometer Exchange Program
- Thermostat Recovery Program
- School Clean Sweeps Program
- Button-Cell Battery Collection
- Bulk Mercury Collection
- Fluorescent Lamp Reimbursement Program

Wheelabrator has continued to develop, expand and improve the MRP in each community participating in the program.

- Each community collection site(s) is monitored on a regular basis. When the collection pails are full they are serviced promptly by the service provider. The program collects elemental mercury and a wide variety of mercury containing devices including: fever thermometers, lab thermometers, thermostats, mercury switches, sphygmomanometers, button-cell batteries, barometers and an assortment of miscellaneous mercury containing items.

- Training and education is conducted with personnel at each site on an ongoing and as needed basis.

- A financial reimbursement program for costs related to the disposal of mercury containing lamps such as fluorescent and HID bulbs, which was initiated in 2002, was fully implemented.

- Button-cell batteries continued to be collected utilizing small collection boxes.

- Six advertisements promoting the program and encouraging residents to bring mercury containing devices to the collection site were run in each community's

local newspaper. These ads are an important aspect of the overall educational and outreach effort.

- Communities were encouraged to display the 3' x 4' educational display board at their city or town halls, libraries, senior citizen centers etc.

- A bi-lingual 6" x 9" postcard was mailed to every resident promoting the program.

- Local Health Boards were encouraged to adopt regulations banning the disposal of thermostats. Several of the communities passed the regulation. Letters signed by the Building Inspector and the Health Director were sent to every plumber, electrician, boiler tech and building contractor that does renovations in each community that passed the regulation. The letter included a flyer about the program and MADEP information on the health and environmental impacts of mercury.

- The school "Clean Sweeps Program" was continued resulting in the clean-out of most of the remaining schools systems.

The combined effect of all of the MRP activities has resulted in a significant amount of mercury being diverted from the municipal solid waste steam. It has also contributed to a greater awareness on the part of residents about the potential impacts of mercury on human health and the environment.

2. Regional Education Programs

The Integrated Waste Services Association coordinated the regional education / outreach program for five Massachusetts' waste-to-energy facilities including facilities located in Saugus, North Andover, Millbury, Haverhill, and SEMASS.

a) Objectives

In 2003, the Regional Outreach Plan supported individual facility programs by the continued promotion of the media campaign, "Keep Mercury from Rising". This campaign included newspaper and radio advertisements. The campaign used targeted advertising educating the readers and listeners about the concerns related to mercury. The advertisements also encouraged residents to contact their local health departments to receive more information about mercury and find out where in their communities they could dispose of mercury containing devices.

The objectives for 2003 were met and included the following:

- The Regional Outreach Program continued to raise awareness about mercury-containing products in the home and the proper handling and disposal of these products;

- The Program provided information and promote local recycling events;

- The Program continued to build an integrated communications program that leveraged opportunities for incremental, free media, and worked synergistically with the efforts of individual waste-to-energy facilities.

b) Tactics

The Regional Outreach Component continued targeted advertising to reach communities serviced by the facilities, as well as implementing marketing of print advertisements and radio live-read script to run as public service announcements. A print advertisement targeted at contractors and urging the collection and recycling of thermostats containing mercury switches was developed. The website, www.keepmercuryfromrising.org, was updated to include more contact information and contractor material, as well as continuing to provide information and assistance with recycling of mercury-containing products to the general public. A video was produced for each of the five waste-to-energy facilities that showed the unique and effective programs now in place to keep mercury containing products out of the waste stream.

c) Advertising

Radio and print advertising was run in May 2003. Facilities continued to use the "Keep Mercury from Rising" print advertisement featuring the thermometer. An advertisement featuring a thermostat was developed in 2003 and used in Boston Globe advertisement. A comprehensive list of newspapers and radio stations running the advertisements is submitted with this document (Attachment 1). Radio is a targeted medium that provided cost-efficient mass communication and built frequency of message delivery. Print advertising was equally effective. In addition to advertising in the Boston Globe, individual facilities used the "Keep Mercury From Rising" advertisements to announce local activities.

> A three-week radio buy was implemented in May 2003. The buy was timed to encourage mercury recycling activities and added-value opportunities (e.g., sponsorship of special broadcasts, contests, and free spots stations provide).

In 2003, concentrated efforts were continued in the *Boston Globe* and in the radio stations in Boston area that gave our message the most exposure to our audiences. The proportion of print to radio remained the same from 2002 to 2003, but modified the stations slightly due to ranking changes. The communities targeted were: Lawrence, Haverhill, Chelmsford, Lynnfield, Reading, Stoneham, Wakefield, Danvers, Melrose, Groton, Littleton, Essex, Middleton, and Ayer – which are all covered by the North and Northwest Zones of the Boston Globe.

> The Boston Globe was utilized for it's reach with its circulation of 237,524; it allowed coverage of both weeks of the campaign in both mediums, and it enabled utilization of a maximum page size (page dominant) versus community-type newspapers. Overall, the Boston Globe generated high impact with its larger page size and color availability (color not available in most community papers), while reaching a large audience within our target communities more than one time.

Boston Globe – Color Ads (5 column x 18 inches)

Zoned Editions – Sunday May 8 & 15, 2003	**Circulation**
North Section (Danvers, Essex, Haverhill, Lynnfield, Melrose, Middleton, Wakefield)	113,579
Northwest Section (Ayer, Chelmsford, Groton, Lawrence, Littleton, Reading, Stoneham)	123,945
Total	**237,524**

Radio

May 5, 2003 – May 19, 2003	**GRPs**
WBZ – AM – New Talk	57
WODS – FM – Oldies	32
WMJX – FM – AC	55
Total	**144**

d) Web-based Tools

The website, www.keepmercuryfromrising.org, was updated to include more information regarding contractors' proper handling of mercury containing products and wastes, as well as additional links to websites of interest regarding proper handling of mercury containing products.

e) Video

The five-minute "Keep Mercury from Rising" educational video was completed for each facility. The video explains the need to recycle mercury-containing products and the efforts undertaken by the state of Massachusetts and waste-to energy facilities to reduce the amount of mercury entering the environment.
The video will be used at the Wheelabrator Saugus facility for educational purposes during tours and other meetings. Copies of the video will be made available to local cable access television stations. Copies will also be given to local public officials to be shown at meetings, schools, senior citizen centers, and other organizations that would benefit from viewing the video.

f) Evaluation

The effectiveness of the "Keep Mercury from Rising" educational efforts was measured in March, 2003 using a survey that included 400 completed interviews with Massachusetts residents. There was a 95% confidence level that the margin of error was within = / - 5%. The survey included 35 closed-ended questions and five open-ended format questions. A growing number of residents (93% versus 88% in 2002 and 84% in 2001) knew for sure that a glass thermometer contained mercury, which may be due to the targeted ad campaign

specifically using the glass thermometer image coupled with "Keep Mercury from Rising." However, most respondents said they did not own mercury products (similar to 2002 and 2001), while 16% answered yes to owning mercury products – the lowest number in all three years of polling. A full report of the survey results were provided to DEP in March, 2003.

3. Local Outreach

The local outreach / education effort consisted of several activities with a goal of increasing local awareness concerning mercury. The outreach / educational effort focused on three principles of proper management of mercury and products containing mercury. It identified the environmental and health impacts of mercury, identified products containing mercury and provided instructions on how residents can properly manage and dispose of mercury in their community.

a) Newspaper Advertisements

The Mercury Recovery Program continued to be advertised in local newspapers. A total of eighty-eight 5" x 5" ads were placed promoting the program. The ads were placed on the second week of each month, January through November. Each ad was specific to that community's program. The ads informed the residents of the potential harmful effects of mercury to human health and the environment. They listed several common mercury containing products and informed residents where they could bring mercury containing products for proper disposal. The local program coordinators continue to report that the ads are very useful, indicating that there is always an increase in participation after the ads have run.

b) Educational Display Board

The educational display board that was designed, manufactured and distributed in 2002 is still being effectively utilized in the local community outreach campaign. Many of the boards are permanently displayed at the city or town hall. Many of the communities have rotated the display of the boards to libraries, senior citizen centers, health fairs, town meetings etc. These boards have been very complimentary to the overall education and outreach effort.

c) Mailer

A bilingual 6" x 9" postcard mailer was designed and mailed to each resident in the eight participating communities (Attachment 2). The postcard was mailed to 140,000 households. Even though newspaper ads are run on a regular basis in each community's local newspapers, there is a need for additional outreach effort throughout the area. There is a large Hispanic population in most of the participating communities. The local newspapers are not read by all the residents so a direct mail campaign was conducted. The mailer was bilingual, in Spanish and English, informative and action oriented. It listed the common mercury products and provided instructions as to where residents could bring these devices for proper disposal. The mailer also informed residents of the ongoing thermometer exchange program.

4. Mercury Separation and Recycling Program

The community based collection sites continue to be the corner stone of the overall Mercury Recovery Program. Each community has at least one, some have two centrally located, easily accessible collection site(s). These sites are typically located at the Board of Health office, Department of Public Works and or the Transfer Station.

There is a minimum of two five-gallon pails for the collection of mercury containing items at each of these sites. The second pail is the backup and is to be used only after the first pail becomes full. The individual(s) at each site who is responsible for the daily management of the program have been trained in the proper handling and management of mercury containing products. They have also been trained in the proper clean-up procedures in the case of a spill. Each location has a mercury spill kit and a box of zip-lock plastic bags. Written instructions are on the spill kit itself as well as on each five-gallon pail. Due to the fact that there are frequent changes in personnel, training is reviewed with the staff on an as-needed basis during visits to the collection sites. In most cases some form of training and education takes place on each visit.

Jones Environmental is the new service provider for the MRP. Clean Harbors became the service provider for the program after they purchased Safety Kleen in October of 2002. Due to persistent problems with this particular vendor it was necessary to change service providers in the October of 2003.

On each five-gallon pail there are two stickers. One sticker contains the program instructions with information about what to do in case of a mercury spill. The other larger sticker identifies the program, lists a few of the representative mercury containing products and gives instructions about what to do when the pail is full. The local program coordinators are instructed to secure the lid and call the 800 telephone number for a pickup. Jones Environmental will pick up the pail within two to four weeks. Usually the pickup takes place within one or two weeks from the time they receive the pickup request.

In the event that a large quantity of elemental mercury is found in a residents home, special arrangements can be made for a pick up to occur at that location.

5. Thermometer Exchange

The permanent Thermometer Exchange Program continues to be a very popular component of the overall MRP. Though the peak collection numbers from the first two years of the program has dropped off there continues to be a more consistent steady flow of residents coming into the collection sites to exchange their mercury fever thermometer for new digital thermometer. Each community always has an ample supply of digital thermometers. Residents bring their mercury fever thermometers to the collection site and are given a new digital thermometer in exchange. The communities appreciate this aspect of the program. Many of the local program coordinators utilize the residents visit to their office as an opportunity to further educate them about mercury and other aspects of the program. The community-based MRP collected 6,870 4-inch fever thermometers and lab thermometers in 2003.

6. Thermostat Recovery Program

The development of the Thermostat Recovery Program was a major focus of the MRP in 2003. This year saw the expansion of the number of Boards of Health that passed the Thermostat Regulation. The program was also able to implement the first phase of the direct outreach to plumbers, electricians, boiler technicians and building contractors that do renovations.

Thermostats contain small switches that contain mercury. According to the Federal Environmental Protection Agency over 44,000 thermostats are disposed of in the municipal solid waste in Massachusetts each year. According to the Thermostat Recovery Corporation, an industry sponsored organization; contractors handle approximately 80% of the thermostats during their instillation or removal. Each thermostat contains at least one mercury switch, many contain multiple switches. Some household thermostats contain up to four switches. A single thermostat switch contains between 3.8 – 4 grams of mercury. On average thermostats contain approximately 4.8 grams of mercury.

Through extensive interviews with plumbing contractors it became apparent that the vast majority of them would not voluntarily participate in a recovery program. In two communities, Worcester and Medfield, notices were posted for over a year at the Building Department asking contractors to please bring in used thermostats to their offices for proper disposal. After an entire year not one thermostat had been brought to either location. It became apparent that some form of regulation was required to encourage contractors to properly dispose of thermostats.

The MRPs are primarily located in the Board of Health offices of participating communities. The Board of Health is the only entity in a community, other than the City Council or Board of Selectman that can unilaterally pass a regulation. In conjunction with ten area Directors of Health a sample regulation was devised. Now there are a half a dozen different examples of the regulation, ranging from one page to three pages in length. Most communities are currently choosing a simple one page regulation devised and passed by the Shrewsbury Board of Health (Attachment 3). The regulations are usually fairly straight forward, stating the purpose of the regulation, definitions, penalties and effective date. The penalties associated with the regulations range from $50.00 per incident (per thermostat) up to a $300.00 fine per incident. The penalty aspect of the regulation is very important in order to get the appropriate attention of the contractors and to demonstrate that the community is serious about preventing these products from entering the municipal solid waste stream.

Once the regulation is passed, a Contractor Notice is prepared and signed by both the Director of Health and the Building Inspector. The address of licensure for each plumber, electrician, boiler technician and building contractor (that does renovations) in each community has been identified. The address of licensure is usually their home address.
In November, 2003 the first mailing was sent to all of these contractors in a total of twenty-seven communities. These mailings contained the Contractor Notice, on city / town letterhead (Attachment 4). The mailing included a program flyer (Attachment 5) identifying the regulation and the “Fine per Incident”. An educational piece developed by the MADEP, “Mercury and Health” and “Mercury and the Environment” were included in the mailing (Attachment 6). In addition, a supply of the program flyers was delivered to each participating Building Department. These flyers are intended to be attached to each

building, plumbing and electrical permit that is issued for the next year. Also, a small sticker, one inch in diameter, was designed and distributed to each community that had passed the regulation. These stickers are to be placed on any permit that is for external display, such as in a window on a building renovation site (Attachment 7). Two large posters, similar to the program flyer, were also delivered to the Building and Health Departments for display.

The following communities in the Saugus service area were included in this first mailing: Revere, Chelsea, Saugus, Rockport.

We have experienced a significant increase in the recovery of mercury thermostats in 2003 over the previous two years. This increase in recovery is the direct result of the local effort by the Boards of Health to pass the Thermostat Regulation and the increased awareness of the need to remove these products from the municipal waste stream. In 2001 a total of 51 thermostats and mercury switches were recovered. In 2002, a total of 131 were recovered. In 2003 that number increased to 238 thermostats and mercury switches recovered.

7. School Clean Sweeps

The School Clean Sweeps Program in 2003 continued to provide a clean out service for elemental mercury and products containing mercury to interested school systems. The program provided a free service to school systems to inspect chemical storage areas and science laboratories and for the safe removal of elemental mercury and products or devices containing mercury. In addition to the removal service the program also provided replacement products for certain items targeted for removal. The replacement products consisted of lab thermometers, digital barometers and portable and wall mounted sphygmomanometers.

In 2003, School Clean Sweeps was conducted in the Chelsea school system. This was a follow-up to the program conducted in 2002.

8. Button Cell Battery Collection

Each community has received a supply of small collection boxes for button-cell batteries. Communities are encouraged to distribute the boxes to business and certain community locations for the collection of button-cell batteries. Key locations in any community consist of points of purchase such as drug stores, jewelry stores, hearing aide stores and camera stores. Also community locations such senior citizen centers, health offices and libraries are fairly good locations for the collection of button-cell batteries. With limited resources it is difficult for many communities to distribute and collect the collection boxes. Very often the only collection point is the Board of Health office.

9. Bulk Mercury Collection

Each community has been informed that a special collection program is available for elemental mercury. If a large quantity of elemental mercury or devices containing a quantity of mercury is identified in the community, a special pickup of the mercury (or devices) is available. All of the program coordinators have been notified of this special collection service in the event of such a discovery. There were no large quantities of mercury requiring this collection service in 2003.

10. Fluorescent Lamp Reimbursement Program

In October of 2002 a modification to the MSP for the reimbursement to the communities for costs related to the recycling of mercury containing fluorescent lamps was submitted to and subsequently approved by the DEP. The program was continued through the 2003 calendar year. Two communities participated in the program resulting in the reimbursement for 8,336 linear feet of fluorescent lamps.

11. Program Results

All eight Wheelabrator Saugus communities participated in the Mercury Recovery Program in 2003.

The total net amount of mercury collected through the Mercury Recovery Program weighed 175.92. This included 17.19 pounds collected through the School Clean Sweeps program.

The net amount of mercury collected through the community based collection program increased from 143.54 pounds to 158.73 pounds. There is still a significant amount of elemental mercury being collected. In 2003 the net amount of elemental mercury collected through the community based programs weighed 102 pounds compared to 111 in 2002.

The number of fever thermometers collected decreased from the previous year. The recovery of fever thermometers has leveled off resulting in a lower yet steady flow of residents exchanging thermometers. 3,181 fever thermometers were collected in 2003 compared to 6,375 in 2002. There were also 116 lab thermometers collected in 2003 in the community based program, there were no lab thermometers collected in 2002.

The number of thermostats and mercury switches recovered increased from 131 in 2002 to 238 in 2003. Because of the continued development of the Thermostat Program in conjunction with increased media exposure that number is expected to increase in coming years.

The collection of fluorescent bulbs decreased from the previous year due to a lower amount of bulbs being submitted for reimbursement by the city of Everett. The amount of bulbs decreased from 10,526 linear feet in 2002 to 8,336 linear feet in 2003. The total number of linear feet of fluorescent bulbs is anticipated to increase in coming years.

The combination of the regional and local outreach efforts has contributed significantly to the overall increase in awareness about mercury and the potential impacts on human health and the environment. The ads have also made residents aware of the existence of the Mercury Recovery Program, providing them with a convenient location to dispose of mercury containing devices. The development of the “Keep Mercury from Rising” video and its distribution in 2004 should have a considerable positive educational impact throughout the service area.

Material Separation Plan
Saugus – Costs – 2003

Expenses: **$85,586.06**

Includes: consultant fees, travel, supplies, office expense, printing, purchase of digital thermometers, purchase of educational display boards, and purchase of non-mercury products for School Clean Sweeps exchanges.

Insurance **$ 2,709.28**

Includes: Cost of Liability and Disability Insurance

Community Collections: **$ 3,388.95**

Includes: Cost of collection and sorting of mercury containing products for community collection sites.

School Collections: **$ 554.25**

Includes: Cost of collection and sorting of mercury containing products for the School Clean Sweeps Program.

Fluorescent Lamp Reimbursement: **$ 462.60**

Includes: Cost of reimbursement to cities and towns for the recycling of fluorescent lamps.

IWSA: **$39,600.00**

Includes: Cost of Regional Outreach Program, radio and newspaper advertisements, production of "Keep Mercury from Rising" video.

Local Newspaper Advertisements: **$24,488.90**

Includes: Cost of local community newspaper advertisements.

Wheelabrator Technologies: **$ 3,500.00**

Includes: Administrative costs.

TOTAL **$160,290.04**

Annual Tonnage **422,407 tons**

Expenditures, Cents / Ton **$0.379**